330.973
N2197e
NO.74

Three Studies in

The Economics of "Progressive" Taxation

UNIVERSITY OF ILLINOIS
OCT 15 1959
LIBRARY

Price: One Dollar

Economic Series

No. 74
March, 1956

2 East 48th Street, New York 17, N. Y.

Three Studies

in

THE ECONOMICS OF "PROGRESSIVE" TAXATION

RESEARCH DEPARTMENT
NATIONAL ASSOCIATION OF MANUFACTURERS
MARCH, 1956

Three Studies

in

THE ECONOMICS OF "PROGRESSIVE" TAXATION

Foreword

The three most pronounced tendencies of the American tax system, as it has developed during recent decades, are: the increasing predominance of federal taxes as compared with state and local taxes, the increasing reliance on income taxes as compared with other sources of revenue, and the increasing "progressivity" of the federal individual income tax.

These three developments, in combination, may be presumed to have had profound effects on the distribution of tax burdens and hence on the general health and growth of the economy. A detailed appraisal of these effects seems to be in order and was in fact undertaken by the Subcommittee on Tax Policy of the Joint Committee on the Economic Report, during the latter part of 1955. The Subcommittee received papers from about eighty persons representing a wide range of views, and subsequently discussed them with the authors in panel sessions. The papers and the discussions are published in two bulky volumes.

Despite the volume of material that was thus made available, there are still some important things left to be said on the subject of our present tax structure and its economic effects. In particular some of the papers and testimony seem incomplete and misleading and to call for a more penetrating approach.

This conclusion is the occasion for the present pamphlet. It deals with three subjects which were brought up in the course of the Subcommittee's investigations but which—as will appear—were not adequately dealt with.

Section I presents a study of the comparative tax burdens of families at various levels of income. Its primary object is to analyze the "progressivity" or "regressivity" of particular forms of taxation and of our tax system as a whole. This is of course a central question on which a number of factual studies are already available. Our reasons for believing that the existing studies are unsatisfactory are described in Section I.

The effect of taxation on capital investment—and hence on the growth of the economy—is also a central question. Sections II and III deal with two aspects of that subject on which inadequate or misleading testimony was presented to the Subcommittee on Tax Policy. Section II exposes the fallacy in the view that increased productivity of capital implies a reduced "need" for capital. Section III is a systematic criticism of a major study of the effects of taxation on investment by individuals. That study, prepared by the Division of Research of the Harvard Business School, appeared in 1953 but a condensed version of its conclusions was presented to the Subcommittee on Tax Policy in November 1955.

It is hoped that the three studies in the present report will throw additional light on the very important questions with which they deal. They were prepared by the Research Department of the National Association of Manufacturers.

Henry E. Hansen, Vice President
Policy Committee Division

SECTION I

A STUDY OF FAMILY TAX BURDENS BY INCOME LEVELS

The families and individuals of the nation pay taxes in many different forms and through many different channels. The individual or the head of the family has no way of computing directly the total amount of the tax burden he actually bears. Ordinarily he has no way of determining directly the effect on him of proposals for changes in the tax law. Yet these are highly important items of information for the intelligent formulation of national tax policies.

The purpose of the present study is to furnish factual data of this character. The results, presented in the accompanying Table 1 show the burden of the 1954 tax structure on typical urban four-person families, at various levels of income.

The magnitude of a family's tax burden depends on many factors besides the family income. A family of tee-totalers would bear a smaller tax burden than another family at the same income level which used alcoholic beverages. A family which owned corporate stocks (the yield on which is taxed before it is received by stockholders) would bear a greater tax burden than a family which had the same income but which did not own stocks.

However, of all the factors which affect the tax burden of a particular family, the level of its income is one of the most significant. Arguments for or against particular forms of taxation are often based on their alleged differential effect as between low income and high income classes. For this reason, the present study takes into account the variation in family tax burdens due to differences in income, but not the variations due to other causes. The family is assumed to consist of four persons, to be city dwellers, and to be "typical" in respect to its consumption habits and ownership of various forms of property. Government statistics are used as a guide in determining the patterns of consumption or ownership which are "typical" at each level of income.

Information on consumption patterns of urban families at various income levels is available from several studies published by the U.S. Bureau of Labor Statistics. (See **Handbook of Labor Statistics, 1950 Edition**, Table D-7.) These studies cover 12 cities, representing all sections of the country and a wide range of city-sizes. The expenditures on each category of consumption of the typical family at each income level are determined by a graphical method which in effect averages data for the 12 cities. Some adjustment is necessary, due to the fact that the basic studies cover the years 1945 to 1948, a period when consumption patterns were distorted due to the limited availability of certain consumer goods and services.

(It may be noted that one reason for limiting the present studies to urban families is that no similar information is available on consumption patterns of rural families. It may be presumed that they would be somewhat different.)

Information on the ownership of corporate stocks and of real estate by income brackets is available in the **Survey of Consumer Finances,** published by the Federal Reserve Board. (See **Federal Reserve Bulletin**, September 1952, page 984 and June 1955, page 622). Although the data for real estate ownership applied to 1952, it is assumed that the general character of the distribution remained the same in 1954.

The detailed documentation of the statistics derived in these studies is contained in the notes appended to the table. The general procedure can be set forth briefly here.

In the case of the federal individual income tax and the federal employment tax (employee's share) the specific liability of each family is computed by reference to the tax schedules. In all other cases the burden borne by each family is estimated by pro-rating the total tax collections in proportion to whatever factor of ownership or consumption is appropriate.

For example, a typical urban family of $4,000 income is estimated to have spent $60 on tobacco in 1954. Total consumer expenditures on tobacco in that year amounted to $5.2 billion. Therefore, the family in question spent $11.54 on tobacco, for each billion dollars of the national total. It is therefore assumed to have paid $11.54

out of each billion dollars collected in excise taxes on tobacco. In 1954 collections of federal excises on tobacco amounted to $1.5 billion. Therefore the $4,000 family bore $17 of this tax.

Estimates of the tax burdens resulting from the system of taxation in effect during calendar 1954 are presented in Table 1 (page 7).

COMPARISON WITH OTHER STUDIES

Certain earlier studies of the same subject employed a method of approach which differed basically from the method adopted in the present memorandum. For clarification the difference had better be explained, and its consequences, for the meaningfulness of the results, set forth.

The best known statistical studies of tax burdens at various income levels are as follows:

(a) **The Colm-Tarasov study for 1938-39**
("Who Pays the Taxes?", Monograph No. 3, Temporary National Economic Committee, 1940)

(b) **The Musgrave study for 1948**
("Distribution of Tax Payments by Income Groups: A Case Study for 1948." National Tax Journal, March, 1951)

(c) **The Tucker study for 1948**
("Distribution of Tax Burdens in 1948", National Tax Journal, September 1951)

(d) **The Musgrave study for 1954**
("The Incidence of the Tax Structure and its Effects on Consumption," by R. A. Musgrave. **Papers Submitted by Panelists appearing before the Subcommittee on Tax Policy, Joint Committee on the Economic Report.** Joint Committee Print, 84th Congress, 1st Session)

All four of these studies attempted to estimate the total tax burden falling on all consumer units (families or single persons) in each of a series of income brackets. These tax totals were then related to the total income received in each income bracket. **All families and unattached persons were included in whichever income bracket they happened to fall.**

By contrast, the present study estimates the tax burden of **typical families at certain specified levels of income** rather than of **all families and unattached persons within certain specified brackets of income.** Even more important, the present study is limited to urban families and to four-person families.

It may be felt that the greater inclusiveness of the earlier studies would be an advantage. Actually it is a factor which tends to distort the results when they are used to appraise the progressivity or regressivity of our tax system.

The federal individual income tax is specifically designed to weigh more lightly on a large family than a single individual. The single man with income of $3,000 actually pays more in income tax than the married man with two children who has an income of $4,000.

It would be absurd to cite this as an instance of regressivity since it is by deliberate intention of Congress—an intention which has nothing to do with regressivity. Yet the studies by Musgrave, et al., do something like this by throwing all types of taxpayers into the same series of income brackets.

The practice followed in the earlier studies would not result in any serious distortion if the single persons were spread proportionately over the income scale. Such, however, is not the case. For example, unattached individuals make up 36 percent of the cases of families and individuals with incomes below

$3,000, but only 7 percent of the group with incomes above $3,000.*

As a result, the lower income brackets contain a disproportionately large number of taxpayers without dependents. These taxpayers, for reasons unconnected with regressivity or progressivity, pay higher taxes than taxpayers with families. This factor can give a specious appearance of regressivity to a system that is really progressive, or at least it will understate the progressivity of the system.

A similar distortion results from the mingling of urban and rural families in the four earlier studies cited. For various reasons—connected both with methods of getting income and patterns of consumption—it may be presumed that the tax burden on farmers is somewhat different from the tax burden of urban families.

For these reasons it is felt that a study limited to urban families of a specified size gives a better basis for studying the progressivity or regressivity of our tax system. The analysis presented in this report is one such study. Similar studies might be prepared for other sizes of family.

INTERPRETATION OF THE RESULTS

The customary manner of studying the progressivity or regressivity of a tax structure is to compute the tax burden of each income class as a percentage of income before taxes, and to examine the variation in such percentages over the income scale. An exception will be taken later, but for the moment we may analyze our results in this traditional way. The necessary percentages are presented in Section A of Table 2 (page 10).

The 1954 federal tax system is strongly progressive over the entire range studied. The burden on incomes of $2,000 amounts to 14.0 percent of income, and this percentage rises steadily, reaching 29.4 percent at $15,000.

The state and local tax system appears moderately regressive up to $7,500 and becomes moderately progressive above that level. However, the entire range of variation in the percentages of income taken in state and local taxes is only from 7.8 percent to 9.4 percent.

The consistent progressivity of the federal system more than offsets the variations in the state and local system. As a result the combined tax burden rises steadily from 23.4 percent at $2,000 to 38.4 percent at $15,000.

However, this type of analysis has its limitations as a method of studying the burden of consumption taxes (federal, state or local) or of state and local taxes in general. The intense progressivity of the federal individual income tax tends to create a false appearance of regressivity in other types of taxes.

The usual justification for expressing tax burdens of all kinds as a percentage of income before tax is that such income represents the "ability to pay." Yet the ability to pay indirect taxes is most certainly not represented by gross income; it is represented by the income left after payment of direct taxes. It is somewhat absurd, for example, to measure the burden of excises against a base which includes amounts already taken in taxes. Even if consumers at all levels of income were to spend their **disposable** incomes in exactly the same proportions, the burden of indirect taxes at high levels of income would be a smaller percentage of gross income than at lower points on the scale. A person who paid 90 percent of his income in direct taxes—to take an extreme illustration—could not possibly pay more than 10 percent in indirect taxes.

It would seem far more logical, in appraising the effects of indirect taxes, to measure their progressivity or regressivity by a method which is freed from this inevitable and misleading tendency toward regressivity. Similarly, it is more logical to appraise the burden of state and local taxes by a method which relates such burdens to the tax-paying capacity left to the individual after payment of federal taxes. These objectives can be approximated by stating tax burdens as a percentage of **income after federal income tax.** An analysis on this basis appears in Section B of Table 2.

* *"Characteristics of the Low Income Population and Related Federal Programs" by the Staff of the Subcommittee on Low Income Families, Joint Committee on the Economic Report, Joint Committee Print, 84th Congress, 1st Session. Table 1.*

On this new basis, the burden of state and local taxes appears as progressive throughout, except for the heavy burden borne by the $2,000 family. However, any system of indirect taxes is bound to appear regressive at the extreme low end of the income scale. A family with no income whatever would still pay indirect taxes. It is a mathematical fact—having nothing to do with regressivity—that the curve is bound to turn upward near the lower end of the income scale. A family of four persons, living in a city, with an income of $2,000, would not typically be living within that income. It would be supplementing its current income by spending past savings or by borrowing. Some part of such supplements would go for direct taxes, thereby increasing the tax burden as measured against a base which does not include the supplements.

By comparing lines A2 and B2 of Table 2, it becomes clear that the apparent regressivity (up to $7,500) of state and local taxes as analyzed in the conventional way (line A2) is largely a reflection of the progressivity of the federal income tax. If the federal individual income tax were made less progressive, individuals with higher incomes would have more income left to spend on things taxed by states and localities. As a result the state and local system would be revealed as not genuinely regressive at all.

It is sometimes held that federal employment taxes—which are earmarked as contributions for "social security" rather than collected for the general purposes of government—should not be considered as a part of the individual's tax burden. Table 3 shows the effect of excluding employment taxes from the tax burden percentages. On this basis federal taxes appear as even more steeply progressive than whem employment taxes are included. The burden of federal taxes rises from 10.0 per cent of income at $2,000 at 27.6 per cent at $15,000. The total tax burden—federal, state and local—increases from 19.4 per cent at $2,000 to 36.6 per cent at $15,000.

Table 1

ESTIMATES OF 1954 TAX BURDEN OF TYPICAL URBAN FOUR-PERSON FAMILIES AT VARIOUS INCOME LEVELS

(Tax Burden in Dollars)

	ANNUAL INCOME						
	$2,000	$3,000	$4,000	$5,000	$7,500	$10,000	$15,000
Federal							
1. Individual income tax	$ – –	$ 46	$ 218	$ 392	$ 830	$ 1,306	$ 2,414
2. Employment tax	81	114	145	160	187	215	266
3. Corporation income taxes	91	155	229	274	369	567	1,269
4. Estate and gift taxes	23	23	23	23	23	23	23
5. Customs	6	8	10	11	15	20	27
6. Excises	79	109	135	161	224	289	410
Total federal taxes	$ 280	$ 455	$ 760	$1,021	$1,648	$ 2,420	$ 4,409
State and Local							
7. Individual income taxes	$ – –	$ 2	$ 9	$ 15	$ 33	$ 51	$ 95
8. Death and gift taxes	5	5	5	5	5	5	5
9. Corporation net income taxes	4	7	11	14	18	27	61
10. Sales taxes, gross revenue taxes, and licenses	93	124	153	182	254	325	462
11. Property and severance taxes	85	115	150	187	276	392	729
Total state and local taxes	187	253	328	403	586	800	1,352
TOTAL TAXES	$ 467	$ 708	$1,088	$1,424	$2,234	$ 3,220	$ 5,761

NOTES TO TABLE 1

Line 1. The specific liability of each family is computed from the tax schedule. The following assumptions are adopted:

(a) A joint return is filed.

(b) "Deductions" are in line with past experience as reported in "Statistics of Income" for 1952 (the latest available). Data in that document permit the calculation of the percentage of persons in each income bracket who take the standard deduction, and the average (in each bracket) of total deduction, as a percentage of income, for those who itemize. These two percentages are used to compute a representative amount for the deductions of the typical family at each income level.

(c) Exemptions of $2,400 are claimed

Notes to Table 1 (cont'd)

Line 2. The employee's share is assumed borne by himself. The "typical" family is assumed to derive its income from one earner, who is in covered employment. The employers' share is assumed passed on to consumers, and borne by them in proportion to their total consumption expenditures.

Line 3. The burden of the corporate income tax is assumed to be equally divided between stockholders and customers. (There is some empirical evidence that this is approximately the case. See NAM Research Department mimeographed study, "Relationships Between Profits and Sales of Manufacturing Corporations", January 1949. This is also the assumption made by Dr. Rufus S. Tucker in a similar study of tax distribution in 1949. See National Tax Journal, September 1951, page 277).

Line 4. It is assumed that the burden of estate and gift taxes is borne by the heirs or recipients. Since there is no reason to suppose that the prospect of any member of the family receiving a gift or bequest is affected by the current family income, the tax is assumed spread evenly over the entire population. It amounts to $5.70 per capita, or $23 for a family of four.

Line 5. Distributed in proportion to total consumption expenditures.

Line 6. Excises are assumed to be borne by consumers in proportion to their expenditures on the categories of consumption taxed. The total of federal excises is divided as follows:

TAX	FEDERAL EXCISE COLLECTIONS IN 1954 $ BILLION	CATEGORY OF CONSUMPTION USED IN PRORATING TAX COLLECTIONS
Alcohol	2.7	Expenditures on liquor*
Tobacco	1.5	Expenditures on tobacco
Passenger automobiles	.9	Expenditures on automobile purchase and upkeep
Automobile parts, fuels, lubricants, tires and tubes	1.3	One half: expenditures on automobile purchase and upkeep One half: total consumption expenditures
Household equipment	.3	Expenditures on house furnishings
Transportation	.6	Total consumption expenditures
Communications	.7	Total consumption expenditures
Retailers excises	.4	"Other" consumption expenditures**
Admissions and club dues	.3	"Other" consumption expenditures**
Other excises	.5	Total consumption expenditures
TOTAL:	9.2	

**No satisfactory data of family expenditures on liquor available. Such data as exist indicate that liquor expenditures are approximately in proportion to income after direct taxes. This assumption has been adopted.*

***i.e. consumption expenditures other than food, housing, liquor, tobacco, household furnishings, and automobile purchase and upkeep.*

Line 7. State individual income taxes vary greatly from one state to another. Total 1954 collections in all states amounted to 1.1 billion dollars. As a rough approximation this is assumed borne in the same proportion as the federal income tax.

Line 8. Assumed unrelated to income, and distributed evenly over whole population.

Line 9. Total collections assumed distributed one-half in proportion to stock-ownership, and one-half in proportion to total consumption expenditures. (See Line 3 above).

Line 10. Collections separated into major categories and assumed borne in proportion to appropriate category of consumer spending as follows:

TAX	COLLECTIONS IN 1954 $ BILLION	CATEGORY OF CONSUMPTION USED IN PRORATING TAX
Motor Vehicle Licenses		
Personal	.4	Automobile purchase & upkeep
Business	.7	Total consumption
Motor Fuels	2.2	One half: automobile purchase & upkeep One half: general consumption
Liquor	.6	Expenditures on liquor
Tobacco	.5	Expenditures on tobacco
General Sales Taxes	3.0	Consumption, other than food
Other	2.5	Total consumption
TOTAL:	9.9	

Line 11. Property taxes are the most important form of local taxation. Total collections (state and local) amounted to 10.3 billion dollars in 1954. It is difficult to determine just how this burden is distributed, but the following four factors are clearly involved:

Real-estate ownership

Stock ownership

Housing expenditures

General consumption

In the absence of any better criterion, the amount assigned to each family is an unweighted average of the amount which would be assigned by each of these four measurements.

Table 2
1954 TAX BURDEN AS A PERCENTAGE OF INCOME AT VARIOUS INCOME LEVELS
(Typical Urban Four-Person Families)

	ANNUAL INCOME BEFORE TAXES						
	$2,000	$3,000	$4,000	$5,000	$7,500	$10,000	$15,000
Section A							
Taxes as a percent of income before taxes							
A1 Federal	14.0%	15.2%	19.0%	20.4%	22.0%	24.2%	29.4%
A2 State and local	9.4	8.4	8.2	8.1	7.8	8.0	9.0
A3 TOTAL	23.4	23.6	27.2	28.5	29.8	32.2	38.4
Section B							
Taxes as a percent of income after federal individual income tax							
B1 Federal (other than federal individual income tax)	14.0	13.8	14.3	13.7	12.3	12.8	15.9
B2 State and local	9.4	8.6	8.7	8.7	8.8	9.2	10.7
B3 Total (other than federal individual income tax)	23.4	22.4	23.0	22.4	21.0	22.0	26.6

Table 3
1954 TAX BURDEN, *EXCLUDING FEDERAL EMPLOYMENT TAXES*, AS A PERCENTAGE OF INCOME
(Typical Urban Four-Person Families)

	ANNUAL INCOME BEFORE TAXES						
	$2,000	$3,000	$4,000	$5,000	$7,500	$10,000	$15,000
Section A							
Taxes as a percent of income before taxes							
A1 Federal	10.0%	11.4%	15.4%	17.2%	19.5%	22.0%	27.6%
A2 State and local	9.4	8.4	8.2	8.1	7.8	8.0	9.0
A3 TOTAL	19.4	19.8	23.6	25.3	27.3	30.0	36.6
Section B							
Taxes as a percent of income after federal individual income tax							
B1 Federal (other than federal individual income tax)	10.0	10.0	10.5	10.2	9.5	10.3	13.7
B2 State and local	9.4	8.6	8.7	8.7	8.8	9.2	10.7
B3 Total (other than federal individual income tax)	19.4	18.6	19.2	18.9	18.3	19.5	24.4

SECTION II

THE SIGNIFICANCE OF RISING PRODUCTIVITY OF CAPITAL

In a recent paper,* Mr. Stanley H. Ruttenberg draws attention to certain statistical studies indicating that the productivity of capital has been rising for some years. Mr. Ruttenberg interprets this fact as supporting his contention that the provision of investment capital for American industry is becoming less important for economic growth and that, therefore, the formulation of tax policy can properly give less attention to the need for capital.

However, a correct understanding of the significance of rising capital productivity requires a somewhat more penetrating analysis than appears in the Ruttenberg paper. His discussion of the economic causes underlying the observed gain in the productivity of capital leaves out one important facet—namely, the effect of capital scarcity on capital productivity. As a result the conclusion drawn by Mr. Ruttenberg is diametrically opposite to the conclusion genuinely justified by the statistical facts he cites. Instead of being evidence of a declining need for capital, they are evidence of a growing scarcity of capital relative to the opportunities for using it productively. The removal of artificial obstructions to capital formation becomes a *more* important objective of policy, since the potential productivity of the capital lost through such obstructions is greater than ever before.

The statistical studies to which Mr. Ruttenberg refers were published by the National Bureau of Economic Research.** They give factual information in an area where it has previously been lacking; namely, the relationship between invested capital and output in particular industries, and the changes over time in such relationships. One of the most striking discoveries in these two studies is that since about 1919, in both mining and manufacturing, there has been a progressive decline in the ratio of invested capital to output. In other words the amount of capital employed to produce each unit of output has been getting smaller and smaller over the past 35 years. While the basic source statistics are not all that could be desired, this conclusion has been tested in many different ways and its soundness seems well established.

It is perhaps natural to discuss these studies in terms of the "productivity of capital". The productivity of capital would be measured in terms of output per dollar of invested capital (corrected for price changes) just as the productivity of labor is measured in terms of output per man-hour of labor. Since the ratio of capital to output has decreased then the productivity of capital may be said to have increased since 1919.

Whatever terminology may be used, it is important to understand that what the National Bureau has established is a purely statistical fact—the fact that since about 1919 the ratio of capital to output has been declining in manufacturing and mining industries. The economic implications of this statistical fact are not immediately obvious but require some interpretation and analysis.

*"*The Declining Role of Business Investment in a Growing Economy*" by Stanley H. Ruttenberg. (Papers submitted by panelists appearing before the Subcommittee on Tax Policy, Joint Committee on the Economic Report; Joint Committee Print, 84th Congress, 1st Session, November 9, 1955).*

**"*Capital and Output Trends in Manufacturing Industries, 1880–1948*" by Daniel Creamer. Occasional Paper 41, National Bureau of Economic Research, Inc.

"*Capital and Output Trends in Mining Industries, 1870–1948*" by Israel Borenstein. Occasional Paper 45, National Bureau of Economic Research, Inc.

Mr. Ruttenberg interprets the decline in the ratio of capital to output as being due primarily to advances in engineering know-how. As a result of such advances (according to his analysis) we are able to get more in the way of output for each dollar invested. This may be called a purely technological interpretation of the observed increase in capital productivity.

While this is an important part of the picture it is very far from being the whole picture. The productivity of capital at any time must be a joint effect of the state of technological know-how on the one hand and the availability of capital on the other hand. An improvement in know-how may raise the average productivity of a given supply of capital; on the other hand, in a given state of technological know-how an increase in the supply of capital will reduce its average productivity.

There are, at any given time, a practically unlimited number of possibilities for using capital. These would vary greatly in their productivity; i.e., some of the possibilities for using capital would produce an enormous output per dollar of investment and some would produce only a very small output per dollar of investment.

Since capital is always in limited supply, all the conceivable possibilities cannot be taken up. But at any given time capital tends to be allocated to the various possibilities in the order of their productivity —the best opportunities are taken first. The more capital we have available the further down the scale of capital productivity we will go. When capital is scarce it will be used for purposes which yield more return on the average than when capital is plentiful, other things being equal. Thus the National Bureau's results, far from refuting the contention that we have a shortage of capital, corroborate that belief.

The adequacy of capital can be meaningfully appraised only in relation to the opportunities for using it productively. These opportunities depend on, and change with, the prevailing state of technology. A primitive economy, with no knowledge of modern industrial methods can get along with very little capital. It has no shortage since it simply would not know what to do with added capital. If the only known method for moving earth is the man with the shovel, and if each man so employed has one shovel, there is not much to be gained by putting up additional capital to buy him two shovels.

But if modern technology were suddenly made known to such a community its existing capital plenitude would immediately be converted into a capital scarcity. The earth-movers could be given power shovels and bull-dozers, if the necessary capital could be found.

Something of the same sort occurs, in a gradual way, in our own economy. A supply of capital which might have been adequate in relation to the technology of a generation ago would be completely inadequate in relation to the present state of our know-how.

As a result of almost continuous technological change, a modern economy never reaches the point where it has all the capital it can possibly use. No one would pretend that we should expect to reach that point. But it is well to notice that—as evidenced by the rising trend in capital productivity—we are further from the point of "capital saturation" than we were in 1919.

Our capital supply has not kept up with the technological expansion in the opportunities for using capital productively. As a result of this relative scarcity, the economy becomes progressively more selective in choosing the particular situations to which capital is applied—hence the rising productivity of capital. If capital were made sufficiently plentiful, its average productivity might descend to levels comparable with those prevailing in 1919.

(It should not be concluded that society benefits from a scarcity of capital through the ensuing rise in the average productivity of capital. It is an elementary principle of economics that a scarcity of any commodity makes each unit of that commodity more valuable. It does not follow that the object of economic policy should be to promote scarcity.)

When Mr. Ruttenberg applies his interpretation to questions of tax policy he again goes astray. His conclusion is that, since less capital is needed per unit of output, it is less important to give consideration to capital needs in framing tax policy.

This argument is the counterpart of the argument that increasing labor productivity results in unemployment. Mr. Ruttenberg seems to believe in a "technological unemployment" of capital. The increasing productivity of capital, he seems to be saying, means that we will have less use for capital in the future.

The theory that an increase in the productivity of any factor of production implies a decreased "need" for that factor is equally fallacious whether it is applied to labor or to capital. It involves the false assumption that our economy has only a predetermined number of things to be done and if the labor (or capital) used in doing them becomes more productive some part of our labor (or capital) will necessarily be left without opportunity for useful employment.

Realistically considered, the rising productivity of capital indicates that it is now more than ever important to remove any tax obstructions to the formation of capital. Each additional dollar made available can contribute more, in the way of added output, than in previous periods of our history. There is more to be gained, in the way of an increased flow of goods and services, for each dollar of capital set free by tax reform.

SECTION III

COMMENTS ON "EFFECTS OF TAXATION—INVESTMENT BY INDIVIDUALS"*

It has frequently been charged that the present federal tax system—and in particular the high and progressive rates of individual income taxation—has seriously reduced the supply of venture capital available to American industry. It is also argued that this shortage of venture capital is an impediment, actual or potential, to the sound growth of our economy.

The volume under review casts some doubt on the validity, or at least on the cogency, of this thesis. The broad conclusion of the study can most succinctly be presented in the authors' own words. The following is offered by them as the "best one-paragraph distillation" of their findings:**

> "The tax structure, as of 1949, cut substantially into the investment capacity of the upper income and wealth classes—the strategic source of venture capital for investment in business—and, on balance, it also decreased the willingness of these investors in the aggregate to make equity-type investments. In other words, for equity-type investments considered as a whole the investors who were induced by taxes to shift to less risky investment positions appear to have overbalanced the opposite reaction of appreciation-minded investors. The latter group, however, may have been so stimulated by the tax structure to seek out investments offering unusually large capital gains potentialities, such as promising new ventures, as actually to increase the flow of capital to such situations. However this may be, it is clear that the combined impact of these effects fell far short of drying up the supply of equity capital which private investors were willing and able to make available to business. The evidence indicates that the accumulation of investable funds by the upper income classes has been consistently large during postwar years, despite the existing tax structure, and that individuals with large incomes and substantial wealth continue as a group to hold and invest a large proportion of their funds in equity-type investments."
>
> *(pp. 50-51)*

This summary contains comfort for both sides in the controversy as to whether there is a tax-created shortage of venture capital. The first sentence could be quoted advantageously by those who contend that taxes have reduced the supply of venture capital. The last sentence could be quoted with equal advantage by those who deride that contention.

Despite this nice balancing of opposing points of view in the summary paragraph, the study has been widely interpreted as seriously weakening the argument that taxes have created a grave shortage of venture capital. *Business Week* includes the following remark in its report on the study:

> "This study provides a wealth of information—facts that deal body blows to many theoretical beliefs. The biggest blow of all: If the study is right, the present tax structure has not materially affected the flow of individual investments to business enterprises."
>
> *(Business Week, June 13, 1953; p. 104)*

* *By J. Keith Butters, Lawrence E. Thompson and Lynn L. Bollinger; Division of Research, Graduate School of Business Administration, Harvard University; Boston, 1953.*

** *This paragraph is repeated with one minor alteration in the paper submitted by J. Keith Butters, of Harvard University, to the Subcommittee on Tax Policy of the Joint Committee on the Economic Report, November, 1955.*

A review of the book on the financial page of the *New York Times* emphasizes the fact that:

"...the authors aren't greatly worried over the ability of the top income families to continue to supply the necessary funds (for investment in equities), high taxes, or no high taxes."
(New York Times, May 18, 1953; p. 34)

This emphasis by commentators on one side of the conclusions is to a considerable extent justified by the general tone of the book itself. The reader is constantly encountering remarks like the following:

"If our analysis is sound, the tax structure—from 1949 through mid-1952—has been much less repressive on the capacity and willingness of upper bracket individuals to make equity-type investments than is frequently alleged." *(p. 62)*

"...the existing tax structure has been only mildly repressive in recent years in its aggregate effects on the decisions of private investors." *(p. 64)*

"One thing, however, is clear: the facts do not justify the extreme statements often made with respect to the effects of taxes on the supply of venture capital." *(p. 277)*

"Thus, considering both *policy* and *capacity* effects, the overall impact of the existing tax structure as compared with a less progressive tax structure is probably to deter the flow of funds into the new issues market as a whole, but even so the basic reasons for the thinness of the new issues market obviously are nontax in character." *(p. 251)*

"As just stated, our belief is that the tax structure, as of 1949, did not exert any substantial repressive effect on the *willingness* of investors in the aggregate to hold marketable common stock." *(p. 229)*

Since the emphasis in the book itself is on the contention that taxes have not substantially reduced the flow of venture capital, the major task of this commentary will be to weigh the evidence on which that contention is based. For such an appraisal to be comprehensible it must, of course, be preceded by a brief summary of the evidence and arguments.

SUMMARY OF EVIDENCE AND ARGUMENTS

The conclusions of the Harvard study are supported by statistics drawn from a variety of sources. The annual Survey of Consumer Finances (sponsored by the Federal Reserve Board) is extensively used. So is the National Bureau of Economic Research (Simon Kuznets) study on "Shares of Upper Income Groups in Income and Savings." However, most of the critical points in the analysis are based on the results of a personal-interview survey of "active investors," conducted for this specific purpose under the supervision of the authors. Apparently, this survey is the only existing source of comprehensive information on the investment attitudes and behavior of upper-bracket individuals.

The book devotes itself to answering three questions. They are posed in the following language:

"1. Whose investment decisions are important?
"2. How have taxes affected the investment capacity of these groups of investors?
"3. How have taxes affected their investment policies?" *(p. 16)*

The answers, and the information on which those answers are based will be summarized very briefly in what follows:

"1. Whose investment decisions are important?"

The answer given is that:

"From the standpoint of the flow of equity capital from private investors to business, the investment decisions of individuals in the upper income and wealth classes are of overwhelming importance." *(p. 16)*

This conclusion is based on a combination of data from the Federal Reserve Board's "Survey of Consumer Finances" and the Harvard group's own survey of "active investors". The former indicates that about four-fifths of all net saving takes place in the top one-tenth of income receivers (incomes of $6,000 and over). The latter indicates that within this top one-tenth the rate of saving is approximately in proportion to income. By combining these conclusions, the authors compute that the top 1% of all "spending units" account for 30 to 35 percent of accumulations of investable funds, and the top 5% account for 60 to 65 percent of such accumulations.

These conclusions are used as justification for concentration on the investment behavior of the upper income groups in the remainder of the study. They are also advanced as an indication of the impracticality of obtaining investment funds from middle or lower income groups.

"2. How have taxes affected the investment capacity of these groups of investors?"

The study does not even attempt to answer this question as it is phrased. It regards as impractical any attempt to compare actual savings with the savings which would have occurred in the absence of taxes or under an alternative tax system. Instead, it merely attempts to determine the amounts upper income groups actually are able to accumulate under the existing tax system. The findings are summarized as follows:

> "In general, then, our conclusion is that the changes in the tax structure over the past 15 to 20 years have substantially reduced the capacity of upper bracket individuals to accumulate new investable funds, *but that,* for reasons indicated, *their remaining capacity is still very large*—much larger than is popularly supposed." *(p. 29)*

This finding is supported first by reference to the Federal Reserve Board's Survey of Consumer Finances, which indicates that the top one-tenth of income receivers are able to save about 10 billion dollars annually.

This top one-tenth of income receivers extends down to incomes of $6,000. For more detailed information, it is necessary to turn to the Harvard group's survey of "active investors." Here the findings are astounding and completely at variance with general supposition. The respondents to the survey reported that they were able to accumulate investable funds to the extent of one-quarter to one-fifth of their income before taxes. This high ratio of savings to income extends even to income brackets above $50,000.

These conclusions seem to be at variance with computations of investment potentials of higher income groups based on considerations of the tax rates to which high incomes are subject. The study recognizes this objection, but points out that upper income groups have available a number of devices for escaping the full impact of theoretical tax rates. It mentions, as illustrations of such devices, tax exempt investments, high depletion charges in certain industries, the charging of personal expenditures as business expense, the use of trusts and family partnerships, etc. However, the study emphasizes the preferential tax treatment of capital gains as the most important device for protecting income against taxation.

"3. How have taxes affected their investment policies?"

The supply of venture capital is affected not only by the *capacity* of upper income groups to accumulate investable funds, but also by the *policies* they pursue in investing (or not investing) such accumulations. Both capacity and policy may be influenced by taxation.

The great bulk of the Harvard study (more than two-thirds of it) is concerned with the question of the effects of taxation on investment policy. The evidence on this point is derived almost exclusively from the field survey of "active investors".

In this commentary, it is impossible to do more than suggest the nature of the evidence, the arguments, and the findings, in regard to tax effects on investment. The general procedure in the book is to divide the respondents to the survey according to whether their major concern is for income, capital preservation, or capital appreciation. The effects of taxation are examined separately for each of these classes.

Investors whose major interest is in income and capital preservation are found, as might have been expected, to be influenced in the direction of greater conservatism by the present tax system. Investors whose chief interest is in capital appreciation have been, according to this survey, made more venturesome as a result of taxes. The tax advantage of capital gains over ordinary income is the chief reason for their impulsion in this direction.

The Harvard study, on the basis of its own sample survey, computes that taxes have induced some shift out of marketable common stocks, but that this has been minor in degree, amounting to less than 5 percent of the total cash and marketable securities of the active investors.

On the subject of capital available for new stock issues, the same sample survey indicates that the market for such issues has been very thin, but that the reasons for this condition are to be found in considerations other than taxes. Among the minority of individuals who reported that their attitudes were affected by taxes, more reported that tax considerations turned them away from new issues than that tax considerations attracted them toward new issues. The study goes on to report (gratuitously, since the data give no information on this point) that for new issues of companies "with extraordinarily promising capital gains potentialities," the net effect of taxation may be to increase their attractiveness to investors. This would be due to the lower rates at which capital gains are taxed.

The same sample survey of "active investors" is used to determine the effects of taxation on attitudes toward new ventures. New ventures are defined to mean all new business investments other than public issues of securities. These are the most venturesome type of investment of all. The survey data indicate that for investors whose primary object is income or capital preservation the effect of taxation is to make such new ventures less attractive. For investors whose objective is capital appreciation, on the other hand, the lower rate of capital gains makes this type of investment more desirable. On this basis, the study reasons that the net effect of taxation is probably to increase the proportion of funds invested in new ventures, since individuals whose primary objective is income or safety of principal would probably not have invested in such ventures in any case.

* * * * *

The foregoing discussion of the evidence and arguments is not an adequate summary of the book, or a satisfactory substitute for reading it. These remarks have been offered merely as a necessary background for the presentation, which follows, of certain major criticisms, which may be directed against the study's methods and conclusions.

MAJOR CRITICISMS OF THE HARVARD STUDY

There is no intention in this commentary of pinpointing the Harvard study with a detailed point-by-point criticism. Only such major criticisms are listed as affect to some substantial degree the broad conclusions of the study.

MAJOR CRITICISM NO. 1: The study assumes throughout that capital gains represent a form of income which is available for new investment in business.

The validity of this assumption may be seriously questioned. It is true that, when any individual receives a capital gain, (that is, when he sells an asset for more than it cost him) he can do as he pleases with the gain. He can, if he wants to, use that to invest in a new venture. *But, some other individual was deprived of an equal amount of investment capacity in order to create this capital gain.*

As a hypothetical case, consider the sale, by individual A, of a block of stock for $150,000 which he had originally purchased for $100,000. It is bought by individual B with $150,000 he had accumulated by saving out of ordinary income.

It is clear that this transaction does not, in itself, provide any new capital to business. The question is whether the $50,000 capital gain, which individual A realizes, and on which he pays taxes, represents a net increase in the funds potentially available for supplying new capital to business.

The answer is obvious. The capital gain does *not* represent such a net increase. The $150,000 cash which individual B had accumulated out of ordinary income is now in the hands of individual A, but it did not increase in amount through the transfer. The full $150,000 (less the tax due on the $50,000 of capital gain) is still available for new investment, but its origin is not in the capital gain but in the process of saving out of ordinary income by individual B.

The question of whether capital gains may properly (for this analysis) be included in income or savings is not a minor or trivial point. The Harvard study itself *(Table IV-3; p. 106)* indicates that in 1946-1947 net capital gains accounted for about 25 percent of all adjusted gross incomes above $50,000, and for about 50 percent of all adjusted gross incomes over $250,000. Elimination of this element from savings and income might very well lead to the conclusion that these upper brackets had no real capacity at all for supplying new venture capital to business.

Both the Federal Reserve Board's Survey of Consumer Finances, and the special sample survey conducted for this study, define income and savings to include capital gains. Since this assumption is inappropriate in an analysis of the supply of venture capital for business, and since the two surveys form the basic evidence on which the conclusions of the book are based, those conclusions must be seriously vitiated.

MAJOR CRITICISM NO. 2: The sample survey of "active investors" is seriously biased in the direction of showing upper-bracket individuals too favorable toward venturesome investments.

The sample survey was based on personal interviews with 746 selected individuals. The smallness of the sample would not have been a serious defect, if it had been chosen so as to be a representative cross-section of the general population, or at least of upper-income persons whose capacity and willingness to invest are strategic for the supply of venture capital.

But the method of selection indicates that the sample could not have been a representative cross-section. The persons to be interviewed were chosen from lists of persons who maintained contacts with investment bankers and security dealers. The names were chosen from the card-files of security salesmen and customers' men.

In other words, an individual could not have been included in the sample unless he had shown sufficient capacity to invest, and sufficient willingness to invest, to be considered a worthwhile prospect by dealers in securities. Since the capacity and attitudes of individuals are the very questions at issue, this cannot help but introduce a serious bias into the results. If an individual was so seriously affected by taxation as to destroy his ability or his willingness to invest, his experience was automatically excluded from the sample.

It is as though a sample inquiry were to be made, by personal interview, of the effects of television on the frequency of attendance at movies. Suppose then, that the interviews were conducted in the lobbies of movie theatres. Obviously, the survey could not give a fair picture, since the greater the degree to which a person was influenced to stay away from the movies the smaller would be the likelihood of his inclusion in the sample.

Most of the important conclusions of the Harvard study depend on the evidence derived from their sample survey of "active investors." There is serious question as to whether the findings which indicate that taxes have been only a minor impediment to the supply of venture capital may not have been in part the result of bias in the sample.

MAJOR CRITICISM NO. 3: The study does not include any investigation of business needs for venture capital, which could be used as a criterion in judging the seriousness of tax effects on the supply of venture capital.

The authors specifically excuse themselves from making such a companion study of capital needs. They explain at length how complex and difficult such an investigation would be, and declare it "beyond the scope" of their book.

All this is understandable and justifiable since a thorough study of capital needs would probably require another volume of equal size. But, be this as it may, the omission leaves the conclusions vapid and lacking in any content that can be helpful to policy makers. The seriousness of tax effects on the supply of capital cannot be judged in the absence of information on the need for capital. It is as though we were trying to judge the adequacy of an individual's daily calorie intake without knowing how large he was or what type of work he did.

The absence of any standard of the adequacy of capital supply forces the authors to phrase their conclusions in a highly unsatisfying manner. The following (one of the really important conclusions of the study) is an example:

> "In general, then, our conclusion is that the changes in the tax structure over the past 15 to 20 years have substantially reduced the capacity of upper bracket individuals to accumulate new investable funds, *but that,* for reasons indicated, *their remaining capacity is still very large*—much larger than is popularly supposed." *(p. 29)*

The description on investment capacity as "very large" is a mere impressionistic use of words and has no analytical value. The assertion that investment capacity is "much larger than is popularly supposed" may or may not be true (—who has measured the popular belief on this point?—) but it is not of much importance. The only really significant question is whether investment capacity is great enough to meet the needs of business, and the Harvard study is unable to answer this question.

MAJOR CRITICISM NO. 4: The information collected on individual attitudes toward equity investments fails to take account of the fact that the effects of taxation in creating a venture capital shortage have been discounted on the market.

Any type of security will be attractive to investors if the price is low enough. If a company whose stock is selling on the market for $100 a share were to issue new stock for 25 cents a share, it most assuredly would encounter no venture capital shortage. It does not do so because such a deal would be highly disadvantageous to the corporation itself (that is, to its present stockholders).

A venture capital shortage originates in the inability or unwillingness of individuals to invest. But it manifests itself in the inability of business firms to sell their issues on terms they can consider acceptable.

Of course, there are always a few exceptional firms who are willing for various reasons to issue securities even under adverse market conditions. These new issues must be attractive to investors—if they could not have been priced attractively they would not have been issued. If an individual were questioned as to his attitude on these new issues which actually appeared, he might very well report a favorable attitude, despite a very real shortage of capital.

This elementary point seems not to have been considered in the sample survey of "active investors." Interviewees were elaborately questioned as to their investment preferences, and as to the reasons for such preferences. If they assumed (as would be natural) that the questions dealt with the attractiveness of various investments *at the terms on which they are available in the market,* the effect would be to conceal a shortage of venture capital.

MAJOR CRITICISM NO. 5: The basic investment objectives of individuals are assumed in the study to be inherent and unaffected by taxes. The result is to conceal any effects taxation may have in changing investment objectives.

The general procedure in the analysis of effects of taxation of investment policies is first to divide the sample into classes according to their investment objectives and then to examine the effects of taxation on each class. The following five categories of investment objectives are studied:

"Group 1: Capital preservation

"Group 2: Security (or capital preservation) and income

"Group 3: Income

"Group 4: Income and capital appreciation

"Group 5: Capital appreciation" *(p. 145)*

This procedure ignores the possibility that taxes might impel individuals to shift from one class to another. It assumes that they have adopted one or the other position for non-tax reasons. The individual is then assumed to be affected by taxes in a manner which varies according to this basic predisposition.

This general plan of analysis seriously limits the usefulness of the study. It has sacrificed the possibility of detecting the major effects of taxation (which might cause an individual to shift from one objective to another) in favor of a convenient method of detecting the minor effects of taxation (which might influence the behavior of an individual after he had classified himself).

If, for example, taxation had caused a person to shift his basic objective from income to capital preservation, the Harvard analysis would not have disclosed that fact.

GENERAL APPRAISAL

The five major criticisms listed above affect the Harvard study at vital points. They raise a serious question as to whether the book does not present a badly distorted picture of the effects of taxation on the supply of venture capital.

The Harvard study concludes that the investment capacity of upper-income persons is still very large. But in reaching this conclusion, it incorrectly classifies capital gains as investment capacity, and it depends on a badly biased sample survey. Through failure to study business needs, the study is unable to make the expression "very large" a meaningful or useful characterization.

The Harvard study concludes that the repressive effect of taxes on the willingness of investors to hold equities has been "not very pronounced." But this conclusion rests on a sample survey which is clearly biased toward yielding such a result. The interpretation of the survey ignores the extent to which consumer unwillingness is reflected in prices for new issues which are unacceptable to most businesses, rather than in the appearance of new issues which are unattractive to investors. Important tax effects are obscured through classification of investors according to their allegedly "inherent" objectives.

These criticisms create at least a reasonable doubt as to the soundness of the study's conclusions. Persons who believed, prior to the book's appearance, that taxes had created a venture capital shortage can, with good conscience, continue to hold that opinion.

UNIVERSITY OF ILLINOIS-URBANA
3 0112 105518176

NAM ECONOMIC SERIES

For additional studies, see NAM Catalog of Educational Aids

1956 to date

Number 70 Financing Small Business
" 71 The Federal Budget for 1957
" 72 Does Public Education Need Federal Aid?
" 73 A New Source of Credit for Small Business
" 74 The Economics of Progressive Taxation

1955

Number 68 The Federal Budget for 1956
" 69 The Capital Budget

1954

Number 65 The Federal Budget for 1955
" 66 The Industrial Future of Atomic Energy
" 67 Retirement Security in a Free Society

1953

Number 57 Major Tendencies in Business Finance
" 58 How to Balance the 1954 Federal Budget
" 59 An Excess Profits Tax is Against the Public Interest *(out of print)*
" 60 Industrial Research and The Atomic Future
" 61 Taxes and Venture Capital
" 62 Patents . . . Progress . . . and Prosperity
" 63 Topics of Current Interest in International Economic Relations
" 64 Federal Tax Program *(out of print)*

1952

Number 47 Cut the Budget — How and Where *(out of print)*
" 48 The Public Debt and What To Do About It
" 49 The FTC's Defense of Its Research and NAM's Reply
" 50 Industry and Government Research
" 51 Western Germany—An Economic Appraisal
" 52 Unemployment Compensation in a Free Economy
" 53 Productivity—Gauge of Economic Performance
" 54 Bring Government Back Home *(Revised Summary Edition)*
" 55 The Role and Control of Federal Spending
" 56 The Importance of the United States Patent System *(out of print)*

Copies of these publications may be obtained by request to the
NATIONAL ASSOCIATION OF MANUFACTURERS
2 EAST 48TH STREET, NEW YORK 17, N. Y.